

[Document Name] Claims

[Claim 1]

The bag-manufacturing and packaging system comprising:

a vertical bag-manufacturing and packaging machine that manufactures a bag by

5 sealing a tubular continuous packaging material filled with items to be packaged, and which cuts and discharges the bag;

a conveyance unit that receives the bag discharged from the vertical bag-manufacturing and packaging machine and conveys the bag downstream; and

10 a drop orientation control unit that is disposed between the vertical bag-manufacturing and packaging machine and the conveyance unit and feeds the bag discharged from the vertical bag-manufacturing and packaging machine to a predetermined position on the conveyance unit while maintaining the drop orientation of the bag.

[Claim 2]

The bag-manufacturing and packaging system of claim 1, wherein the drop

15 orientation control unit includes a rotor that feeds the bag discharged from the vertical bag-manufacturing and packaging machine to the predetermined position on the conveyance unit.

[Claim 3]

The bag-manufacturing and packaging system of claim 1, wherein the drop orientation control unit includes a pair of rotors that sandwich the bag discharged from the 20 vertical bag-manufacturing and packaging machine and feed the bag to the predetermined position on the conveyance unit.

[Claim 4]

The bag-manufacturing and packaging system of claim 3, wherein the pair of rotors have elasticity in a radial direction around their rotational axes.

25 [Claim 5]

The bag-manufacturing and packaging system of claim 3 or 4, wherein an interval between the pair of rotors is adjustable.

[Claim 6]

The bag-manufacturing and packaging system of any one of claims 3 to 5, wherein 30 the pair of rotors are independently driven.

[Claim 7]

The bag-manufacturing and packaging system of any one of claims 3 to 6, further comprising a rotation control unit that controls the rotational speed of the pair of rotors.

[Claim 8]

The bag-manufacturing and packaging system of any one of claims 3 to 7, wherein the pair of rotors are disposed such that the rotational axes of the rotors are horizontal.

[Claim 9]

The bag-manufacturing and packaging system of any one of claims 3 to 8, wherein 5 the pair of rotors are disposed such that the rotational axes of the rotors are slanted from a horizontal direction.

[Claim 10]

The bag-manufacturing and packaging system of any one of claims 3 to 9, wherein 10 the vertical bag-manufacturing and packaging machine includes a longitudinal sealing mechanism that seals a sheet-like packaging material along a conveyance direction when forming the packaging material into a tubular form, and a transverse sealing mechanism that seals the tubular packaging material in a direction perpendicular to the conveyance direction of the packaging material, and

the pair of rotors are disposed at a position that is directly below a discharge position 15 of the bag in the transverse sealing mechanism and lower by about a conveyance direction length of one bag.

[Claim 11]

The bag-manufacturing and packaging system of claim 10, wherein the transverse sealing mechanism includes a pair of rotary-type sealing jaws.

20 [Claim 12]

The bag-manufacturing and packaging system of any one of claims 3 to 11, wherein the conveyance unit is disposed at a position that is directly below the pair of rotors and lower by about a conveyance direction length of one bag.

[Claim 13]

25 The bag-manufacturing and packaging system of any one of claims 3 to 12, wherein the pair of rotors are disposed at an intermediate position between the discharge position of the bag in the vertical bag-manufacturing and packaging machine and a drop point of the bag in the conveyance unit.

[Claim 14]

30 The bag-manufacturing and packaging system of any one of claims 3 to 13, wherein the conveyance unit comprises a belt conveyor that is pivotable using one end of the belt conveyor in the conveyance direction as the pivot center.

[Claim 15]

The bag-manufacturing and packaging system of any one of claims 3 to 14, further comprising

a rotor interval adjustment unit that adjusts the interval between the pair of rotors, and
an interval control unit that controls the interval between the pair of rotors by the rotor
interval adjustment unit.

5 [Claim 16]

The bag-manufacturing and packaging system of claim 15, wherein the interval control unit controls the rotor interval adjustment unit in accordance with the size of the bag to be manufactured in the vertical bag-manufacturing and packaging machine.

10 [Claim 17]

The bag-manufacturing and packaging system of any one of claims 3 to 16, further comprising a positioning member that determines the relative position of the pair of rotors with respect to the vertical bag-manufacturing and packaging machine.

[Claim 18]

15 The bag-manufacturing and packaging system of any one of claims 2 to 17, wherein the surface of the rotor is formed by an elastic member.

[Claim 19]

20 The bag-manufacturing and packaging system of any one of claims 2 to 18, wherein the rotor rotates at the same speed as a drop speed of the bag discharged from the vertical bag-manufacturing and packaging machine or at a faster speed than the drop speed.

[Claim 20]

The bag-manufacturing and packaging system of any one of claims 2 to 19, further comprising a cantilever support mechanism that cantilever-supports the rotor.

[Claim 21]

25 The bag-manufacturing and packaging system of any one of claims 2 to 20, further comprising a pullout mechanism that pulls out the rotor from between the vertical bag-manufacturing and packaging machine and the conveyance unit.

[Claim 22]

30 The bag-manufacturing and packaging system of any one of claims 2 to 21, wherein the rotor is formed with a material whose side portions in the rotational axis direction of the rotor are harder than the center portion.

[Claim 23]

The bag-manufacturing and packaging system of any one of claims 2 to 22, wherein

the surface of the rotor is covered by a brush that radially spreads around the rotational axis of the rotor, and

bristles of the brush are longer at both side portions in the rotational axis direction of the rotor than those at the center portion.

5 [Claim 24]

The bag-manufacturing and packaging system of any one of claims 2 to 23, wherein the rotor includes a cooling mechanism for cooling a seal portion of the bag discharged from the vertical bag-manufacturing and packaging machine.

[Claim 25]

10 The bag-manufacturing and packaging system of claim 1, wherein the drop orientation control unit includes a rotor and the conveyance unit, which includes a fixed chute including a conveyance surface disposed at a position facing the rotor.

[Claim 26]

15 The bag-manufacturing and packaging system of claim 1, wherein the drop orientation control unit includes a rotor and the conveyance unit, which includes a belt conveyor including a conveyance surface disposed at a position facing the rotor.

[Claim 27]

The bag-manufacturing and packaging system of claim 1, wherein the drop orientation control unit includes a multiple serial rotor including plural rotors.